



RESOURCE AND PATIENT MANAGEMENT SYSTEM

Laboratory (LR) Electronic Signature Enhancement

Technical Manual

**Version 5.2, Patch 13
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PREFACE

This document describes the components included in the RPMS Lab Electronic Signature Enhancement, and describes the new functionality that the RPMS system gains.

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1.0 Introduction

The RPMS Lab Electronic Signature Enhancement, Version 5.2, Patch 13 is designed to work in conjunction with the Lab Module. This software provides the IHS service unit with a mechanism for helping maintain accountability for lab results and patient care.

2.0 Implementation And Maintenance

2.1 Operating Specifics

Currently the RPMS Lab Electronic Signature enhancement does not have any recommended operating specifics for this package.

2.1.1 Sizing Information

There are three files added to RPMS (9009027, 9009027.1, and 9009027.2) and a new cross-reference. (^LR("BLRA")) created with this patch. The estimate size per record is as follows:

- Audit File (BLRALAB(9009027)) – approximately 200 bytes per record
- Participating Physician File (BLRALAB(9009027.1)) – approximately 145 bytes per record
- Lab Parameters File (BLRALAB(9009027.2)) – approximately 145 bytes per record
- Lab Result Cross-Reference (LR("BLRA") and data node) – approximately 130 bytes per record

2.1.2 Global Journaling

Currently the RPMS Lab Electronic Signature enhancement does not have any recommended procedures for journaling globals.

2.1.3 Translation Tables

Currently the RPMS Lab Electronic Signature enhancement does not have any Translation Tables.

2.1.4 Bulletins

Currently the RPMS Lab Electronic Signature enhancement does not have any Bulletins.

2.1.5 Mail Groups

Currently the RPMS Lab Electronic Signature enhancement does not have any Mail Groups.

3.0 Routine Descriptions

3.1 Overview

The RPMS Lab Electronic Signature Enhancement package's installation will add 28 routines to the RPMS system and modify 9 current Lab module routines. These routines contain all functions necessary to operate the RPMS Lab Electronic Signature Enhancement.

3.2 List of New Routines

The following routines exported with the RPMS Lab Electronic Signature Enhancement Version 5.2, Patch 13 are listed below with brief functional summaries and their checksum values.

Routine Name	Checksum	Description
BLRAL1	3440829	ListMan Routine – this is the lab results display screen.
BLRAL3	3649533	ListMan Routine – this is the delinquent lab results display screen.
BLRAL4	1879894	ListMan Routine – this is the signed lab results display screen.
BLRALAC	5161543	This is the archive/purge routine for the lab audit file.
BLRALAF	7037787	This routine sets the lab results flag.
BLRALAU	489313	This routine sets the lab audit event in the lab audit file.
BLRALBA	8664747	This routine builds detail data for a Clinical Chemistry accession.
BLRALBD	660449	This routine builds detail data for a Clinical Chemistry accession.
BLRALBL	4572596	This routine builds data for the lab results display ListMan.
BLRALBM	9726289	This routine builds detail data for a Microbiology accession.
BLRALBM1	11816172	This routine builds detail data for a Microbiology accession.
BLRALBM2	6455604	This routine builds detail data for a Microbiology accession.
BLRALBM3	8762866	This routine builds detail data for a Microbiology accession.
BLRALBM4	7194905	This routine builds detail data for a Microbiology accession.
BLRALBR	5171418	The routine executes the lab results display.

BLRALDR	4505070	This routine builds data for the delinquent lab results display ListMan.
BLRALFN	3733880	This routine contains lab electronic signature functions.
BLRALFN1	2530072	This routine contains lab electronic signature functions.
BLRALPH	6764983	This routine sets up participating physicians.
BLRALRP	5922388	This routine runs the lab audit file reports.
BLRALS	3222468	This routine builds data for the signed lab results display ListMan.
BLRALUT	1841975	This routine contains lab audit utilities.
BLRALUT1	2807714	This routine contains lab electronic signature utilities.
BLRAPPH	713722	This routine prints a list of all providers and their primary menu options.
BLRASP	51569	ListMan Routine – this is the detail lab result display screen.
BLRAPRE	408886	Pre-Install Routine
BLRAPOST	2465719	Post-Install Routine.
BLRANTEG	3054966	Package Checksum Checker routine

3.3 List of Modified Routines

The following Lab package routines modified with the RPMS Lab Electronic Signature Enhancement Version 5.2, Patch 13 are listed below with brief functional description.

Routine Name	Trigger Event	Description
LRMIEDZ2	Lab Result File	This routine is called when editing a Microbiology report.
LRMIPSU	Audit File	This routine is called when printing a patient's microbiology report.
LRMISTF1	Lab Result File	This routine is called when entering many microbiology results into RPMS at one time.
LRMIV1	Lab Result File	This routine is called when the microbiology result is being entered and verified.
LRMIVER1	Lab Result File	This routine is called when the microbiology result is being entered and verified.
LRRP1	Audit File	This routine is called when printing a patient's clinical

		chemistry report.
LRVER3A	Lab Result File	This routine is called when a clinical chemistry result is being verified.
LRTSTOUT	Lab Result File	This routine is called when a test is deleted from a lab accession.
LRTSTSET	Lab Result File	This routine is called when a test is added to a lab accession.

3.4 List of Functions

3.4.1 \$\$FMTE^XLFD(TIME,FORMAT)

This standard Kernel date function will format a FileMan date into a specific format.

Parameter Description:

- DATE – FileMan Date
- FORMAT – Format Number (1-7)

3.4.2 \$\$FMDIFF^XLFD(TIME1,TIME2,FORMAT)

This standard Kernel date function finds the difference between two dates.

Parameter Description:

- DATE1 – First FileMan Date
- DATE2 – Second FileMan Date
- FORMAT – Return Format Number (1 = number of days and 2 = number of seconds)

3.4.3 \$\$FMADD^XLFD(TIME,DAYS,HOURS,MINUTES,SECONDS)

This standard Kernel date function will add to a FileMan date.

Parameter Description:

- DATE – FileMan Date
- DAYS – Number of days to add to the date.
- HOURS – Number of hours to add to the time.
- MINUTES – Number of minutes to add to the time.
- SECONDS – Number of seconds to add to the time.

3.4.4 \$\$GET1^DIQ(FILE#,IEN,FIELD#,OUTPUT)

This standard FileMan function will retrieve the specified data value.

Parameter Description:

- FILE# – FileMan File Number
- IEN – The record number
- FIELD# - FileMan Field Number
- OUTPUT – The format of the data value
 - I – Internal value
 - E – External value

3.4.5 \$\$EXTERNAL^DILFD(FILE#,FIELD#,FLAGS,VALUE)

This standard FileMan function converts any internal value to its external format.

Parameter Description:

- FILE# – FileMan File Number
- FIELD# – FileMan Field Number
- FLAGS – Flag to determine how to handle output transforms which may be defined for the FIELD#.
- VALUE – The internal value whose external value is to be displayed.

3.4.6 \$\$SETFLD^VALM1(BLRALINE,BLRALVAR,COLUMN)

This standard ListMan function to set a data value for a screen

Parameter Description:

- BLRALINE – Entry number
- BLRALVAR – Data value
- COLUMN – The column name from the screen

3.4.7 \$\$DT^XLFD()

This standard Kernel function retrieves the current date in FileMan format.

3.4.8 \$\$NOW^XLFD()

This standard Kernel function retrieves the current date and time in FileMan format.

3.4.9 \$\$HLDATE^HLFNC(

This standard HL7 package function converts a FileMan date to a HL7 format date.

Parameter Description:

- DATE - FileMan Date

3.4.10 \$\$OPEN^%ZISH(BLRAPTH,BLRANME,OUT)

This standard Kernel function opens and saves data to a specified file.

Parameter Description:

- BLRAPTH – System path (Null is the current path)
- BLRANME – Specified filename
- OUT – Output type (“A” = Append, “W” = Write, “R” = Read)

3.4.11 \$\$KCHK^XUSRB(KEY)

This is a standard RPC Broker package function that checks if a user is assigned a specific security key.

Parameter Description:

- KEY – Security key

3.4.12 \$\$VERSION^%ZOSV(X)

This is a standard MSM function returns the operating system version.

Parameter Description:

- X – Number designating format.

3.4.13 \$\$STRIP^XLFST(X,Y)

This is a standard Kernel package function that strips off designated characters from a string value.

Parameter Description:

- X – String to strip
- Y – Character to strip from X

3.4.14 \$\$IENS^DILF(.DA)

This is a standard FileMan package function that formats the IENS of subfile entries.

Parameter Description:

- .DA – Array of IENS for a particular record in a file.

3.4.15 EN^DDIOL(A,G,FMT)

This is a standard FileMan package function that writes out statements to the user's screen.

Parameter Description:

- A – Array of statements or string value containing statement
- G – Global array of statements
- FMT – Format that may contain string value

4.0 File Descriptions

4.1 Overview

There are three new files included in the RPMS Lab Electronic Signature enhancement Version 5.2, Patch 13. The RPMS Lab Electronic Signature enhancement Version 5.2, Patch 13 KIDS will also export additional fields to MERGE into the existing Lab Result data dictionary. It is imperative that the most current version of the Lab package is installed and in working order prior to installation of the RPMS Lab Electronic Signature enhancement.

4.2 File List

Warning: It is not recommended that you use VA FileMan to edit any of these files!

File Number	File Name	Global	Data
9009027	BLRA LAB AUDIT	^BLRALAB(9009027	NO
9009027.1	BLRA LAB PHYSICIANS	^BLRALAB(9009027 .1,	NO
9009027.2	BLRA LAB PARAMETERS	^BLRALAB(9009027 .2	NO

4.2.1 Current Package Files Modifications

The RPMS Lab Electronic Signature modification will add new RPMS Lab Electronic Signature specific data into the existing Lab Result file (63). The follow list contains all new data fields, which have been added into the current RPMS system by the installation of the RPMS Lab Electronic Signature modification, Version 5.2, Patch 13.

4.2.1.1 Clinical Chemistry (63.04)

Field Number	Field Name	Node;Piece
.9009021	NO REFERENCE RESULT COUNT	9009027;9
.9009022	CRITICAL RESULTS COUNT	9009027;8
.9009023	PENDING RESULTS COUNT	9009027;7

.9009024	ABNORMAL RESULTS COUNT	9009027;6
.9009025	REVIEW STATUS	9009027;1
.9009026	RESPONSIBLE PHYSICIAN	9009027;2
.9009027	SIGNING PHYSICIAN	9009027;3
.9009028	DATE/TIME RESULT REVIEWED	9009027;4
.9009029	DATE/TIME RESULT SIGNED	9009027;5

4.2.1.2 Microbiology (63.05)

Field Number	Field Name	Node;Piece
.9009023	PENDING RESULTS COUNT	9009027;7
.9009024	ABNORMAL RESULTS COUNT	9009027;6
.9009025	REVIEW STATUS	9009027;1
.9009026	RESPONSIBLE PHYSICIAN	9009027;2
.9009027	SIGNING PHYSICIAN	9009027;3
.9009028	DATE/TIME RESULT REVIEWED	9009027;4
.9009029	DATE/TIME RESULT SIGNED	9009027;5

4.2.2 File Flow Chart

RPMS Lab Electronic Signature Enhancement Version 5.2, Patch 13 does not alter or point to any existing RPMS files.

4.2.3 File Protection

The RPMS Lab Electronic Signature enhancement Version 5.2, Patch 13 files contains files that carry a high level of file protection with regard to Delete, Read, Write, and Laygo access and should not be edited locally unless otherwise directed. The data dictionaries for all files should NOT be altered.

@ - Programmer access to files

4.2.4 Files with Security Access

NAME	#	AUDIT ACCESS	DD ACCESS	RD ACCESS	WR ACCESS	DEL ACCESS	LAYGO ACCESS
BLRA LAB	9009027	@	@	@	@	@	@

NAME	#	AUDIT ACCESS	DD ACCESS	RD ACCESS	WR ACCESS	DEL ACCESS	LAYGO ACCESS
AUDIT							
BLRA LAB PHYSICIANS	9009027.1	@	@	@	@	@	@
BLRA LAB PARAMETERS	9009027.2	@	@	@	@	@	@

4.3 Cross References

Currently the RPMS Lab Electronic Signature Enhancement Version 5.2, Patch 13 package does include a new cross-reference to the Lab Result file (#63). The installation will not create any data for this cross-reference as part of the installation process. This cross-reference will be generated as physicians are added to the Participating Physician file and their lab results are verified.

LAB DATA – File 63

^LR("BLRA",BLRARPHY,BLRARFL,-LRIDT,LRDFN)=LRSS

Where BLRARPHY is the RESPONSIBLE PHYSICIAN, BLRARFL is the REVIEW STATUS, LRIDT is the Reverse Date, LRDFN is the Lab Patient IEN, and LRSS is the Accession Area subscript.

BLRA LAB AUDIT – File 9009027

(9009027,.01) DATE/TIME STAMP 0;1

Xref 1: 9009027^B

Set: S ^BLRALAB(9009027,"B",\$E(X,1,30),DA)=""

Kill: K ^BLRALAB(9009027,"B",\$E(X,1,30),DA)

Desc: This field is the date and time that the user accessed this menu option and this patient.

(9009027,.02) USER 0;2

Xref 1: 9009027^C

Set: S ^BLRALAB(9009027,"C",\$E(X,1,30),DA)=""

Kill: K ^BLRALAB(9009027,"C",\$E(X,1,30),DA)

This is by user.

Desc: This is the user who accessed the menu option and selected this patient.

(9009027,.03) MENU OPTION 0;3

Xref 1: 9009027^D

Set: S ^BLRALAB(9009027,"D",\$E(X,1,30),DA)=""

Kill: K ^BLRALAB(9009027,"D",\$E(X,1,30),DA)

This is by menu option

Desc: This is the menu option that was accessed.

(9009027,.04) PATIENT 0;4

Xref 1: 9009027^E

Set: S ^BLRALAB(9009027,"E",\$E(X,1,30),DA)=""

Kill: K ^BLRALAB(9009027,"E",\$E(X,1,30),DA)

Desc: This is the patient that was selected.

BLRA LAB PHYSICIANS – File 9009027.1

(9009027.1,.01) PARTICIPATING PHYSICIAN 0;1

Xref 1: 9009027.1^B

Set: S ^BLRALAB(9009027.1,"B",\$E(X,1,30),DA)=""

Kill: K ^BLRALAB(9009027.1,"B",\$E(X,1,30),DA)

Desc: This field contains the DUZ of a physician who is participating in the electronic signature enhancement.

(9009027.1,.03) PHYSICIAN'S SUPERVISOR 0;3

Xref 1: 9009027.1^C

Set: S ^BLRALAB(9009027.1,"C",\$E(X,1,30),DA)=""

Kill: K ^BLRALAB(9009027.1,"C",\$E(X,1,30),DA)

Desc: This field identifies the physician's supervisor who will be able to pull up laboratory accessions that have not been reviewed.

(9009027.11,.01) SURROGATE PHYSICIANS 0;1

Xref 1: 9009027.11^B

Set: S ^BLRALAB(9009027.1,DA(1),1,"B",\$E(X,1,30),DA)=""

Kill: K ^BLRALAB(9009027.1,DA(1),1,"B",\$E(X,1,30),DA)

Xref: 9009027.1^AB

Set: S ^BLRALAB(9009027.1,"AB",\$E(X,1,30),DA(1),DA)=""

Kill: K ^BLRALAB(9009027.1,"AB",\$E(X,1,30),DA(1),DA)

Desc: This field allows the participating physician to select surrogate physicians to review and sign lab results.

5.0 Exported Options

5.1 Overview

The RPMS Lab Electronic Signature modification Version 5.2, Patch 13 will add 5 new protocols to the existing system.

5.2 List of Options by Name

NAME: BLRA LAB AUDIT ARCHIVE

MENU TEXT: Archive/Purge Audit Data

TYPE: run routine

CREATOR: MITRETEK PROGRAMMER

LOCK: BLRAZLAB

PACKAGE: IHS LABORATORY

DESCRIPTION: This is the archive/purge option for the lab audit data.

ROUTINE: BLRALAC

SCHEDULING RECOMMENDED: YES

UPPERCASE MENU TEXT: ARCHIVE/PURGE AUDIT DATA

NAME: BLRA LAB AUDIT REPORT

MENU TEXT: Print Lab Audit Report

TYPE: run routine

CREATOR: MITRETEK PROGRAMMER

LOCK: BLRAZLAB

PACKAGE: IHS LABORATORY

DESCRIPTION: This option allows the user to print a Lab Audit Report by different sorts.

ROUTINE: BLRALRP

UPPERCASE MENU TEXT: PRINT LAB AUDIT REPORT

NAME: BLRA LAB DELINQUENT RPT

MENU TEXT: Delinquent Lab Results **NEW**

TYPE: run routine

CREATOR: MITRETEK PROGRAMMER

LOCK: BLRAZSUP

PACKAGE: IHS LAB ES

DESCRIPTION: This option will allow a supervisor to check on the outstanding delinquent lab results for any subordinate physicians.

ROUTINE: BLRALDR

UPPERCASE MENU TEXT: DELINQUENT LAB RESULTS **NEW**

NAME: BLRA LAB ES INACTIVATE PHYS

MENU TEXT: Inactivate Lab ESIG Physicians **NEW**

TYPE: run routine

CREATOR: MITRETEK PROGRAMMER

LOCK: BLRAZCLRK

PACKAGE: IHS LAB ES

DESCRIPTION: This option allows the user to delete a participating physician and if there are any un-reviewed or unsigned lab results, will allow the user to reassign those lab results to another physician. The physician will not be inactivated until all outstanding lab results have been dealt with.

ROUTINE: INACT^BLRALPH

UPPERCASE MENU TEXT: INACTIVATE LAB ESIG PHYSI

NAME: BLRA LAB ES PHYSICIANS

MENU TEXT: Enter/Edit/Re-activate Lab ESIG Physicians **NEW**

TYPE: run routine

CREATOR: MITRETEK PROGRAMMER

PACKAGE: IHS LAB ES

DESCRIPTION: This option allows a user to set up participating physicians for the Lab Results Electronic Signature.

ROUTINE: BLRALPH

UPPERCASE MENU TEXT: ENTER/EDIT/RE-ACTIVATE LAB ESIG PHYS

NAME: BLRA LAB ES SURR PHYS PURGE

MENU TEXT: Purge expired surrogate physicians for Lab ESIG

TYPE: action

CREATOR: MITRETEK PROGRAMMER

LOCK: BLRAZLAB

E ACTION PRESENT: YES

DESCRIPTION: This option will purge all expired physicians in the Lab ESIG Participating Physician's file.

ENTRY ACTION: D CSUR^BLRALPH

SCHEDULING RECOMMENDED: YES

UPPERCASE MENU TEXT: PURGE EXPIRED SURROGATE PHYSICIANS

NAME: BLRA LAB REVIEW/SIGN RESULTS

MENU TEXT: Review/Sign Lab Results **NEW**

TYPE: run routine

CREATOR: MITRETEK PROGRAMMER

LOCK: BLRAZPHY

DESCRIPTION: This will allow providers to review and electronically sign lab results

ROUTINE: BLRALBR

UPPERCASE MENU TEXT: REVIEW/SIGN LAB RESULTS **NEW*

NAME: BLRA LAB SIGNED RPT

MENU TEXT: Signed Lab Results Report **NEW**

TYPE: run routine

CREATOR: MITRETEK PROGRAMMER

LOCK: BLRAZPHY

PACKAGE: IHS LAB ES

DESCRIPTION: This option allows the participating provider to see a list of all their responsible lab results and the provider who signed for that lab result.

ROUTINE: BLRALS

UPPERCASE MENU TEXT: SIGNED LAB RESULTS REPORT **NEW**

NAME: BLRA PARAMETERS ENTER/EDIT

MENU TEXT: Lab Parameters Enter/Edit

TYPE: run routine

CREATOR: MITRETEK PROGRAMMER

LOCK: BLRAZLAB

PACKAGE: IHS LAB ES

DESCRIPTION: This option allows users to enter or edit the Lab ESIG Parameters.

ROUTINE: EN2^BLRALAC

UPPERCASE MENU TEXT: LAB PARAMETERS ENTER/EDIT

5.2.1 Chart of Options

Below is a chart of the options exported with the RPMS Lab Electronic Signature Enhancement V. 5.2, Patch 13 software.

Option Name	Menu Text
BLRA LAB AUDIT REPORT	Print Lab Audit Report
BLRA LAB AUDIT ARCHIVE	Archive Lab ESIG Audit Data
BLRA LAB PARAMETERS	Lab Parameters Enter/Edit
BLRA LAB ES PHYSICIANS	Enter/Edit/Re-Activate Lab ESIG Physicians**NEW**
BLRA LAB ES INACTIVATE PHYS	Inactivate Lab ESIG Physicians**NEW**
BLRA LAB ES SURR PHYS PURGE	Purge expired surrogate physicians for Lab ESIG
BLRA LAB REVIEW/SIGN RESULTS	Review/Sign Lab Results **NEW**
BLRA LAB SIGNED RPT	Signed Lab Results Report **NEW**
BLRA LAB DELINQUENT RPT	Delinquent Lab Results **NEW**

5.3 List of Protocols by Name

NAME: BLRA LAB RESULTS LIST ACTION MENU

ITEM TEXT: Lab Results List Action Menu

TYPE: menu

COLUMN WIDTH: 45

MNEMONIC WIDTH: 3

ITEM: BLRA REVIEW LAB RESULT MNEMONIC: R SEQUENCE: 1

ITEM: BLRA SUBORDINATE PROVIDER RESULTS MNEMONIC: C
SEQUENCE: 3

ITEM: BLRAOTHER MNEMONIC: Q SEQUENCE: 5

ITEM: BLRA PATIENT SORT MNEMONIC: P SEQUENCE: 4

HEADER: D SHOW^VALM

MENU PROMPT: Select Option:

Protocols attached to protocol menu above:

NAME: BLRA SUBORDINATE PROVIDER RESULTS

ITEM TEXT: Subordinate Provider Results

TYPE: extended action

DESCRIPTION: This protocol will build and display for a supervisor any of the physicians who are subordinate to them.

ENTRY ACTION: D CSUB^BLRALBR

NAME: BLRA OTHER

ITEM TEXT: Quit

TYPE: action

DESCRIPTION: This should quit out of the current protocol.

ENTRY ACTION: Q

NAME: BLRA PATIENT SORT

ITEM TEXT: Patient Sort Display

TYPE: extended action

DESCRIPTION: This protocol will build and display for lab results by patient name alphabetically.

ENTRY ACTION: D PATS^BLRALBR

NAME: BLRA REVIEW LAB RESULT

ITEM TEXT: Review Lab Result

TYPE: action

DESCRIPTION: This protocol will display for a physician any of the results that have been selected.

ENTRY ACTION: D REV^BLRALBR

NAME: BLRA LAB RESULT DISPLAY ACTION MENU

ITEM TEXT: Lab Result Display Action Menu

TYPE: menu

CREATOR: RPMS,III

PACKAGE: IHS LAB ES COLUMN WIDTH: 26 MNEMONIC WIDTH: 3

ITEM: BLRASIGN	MNEMONIC: S	SEQUENCE: 1
ITEM: BLRASHOW	MNEMONIC: P	SEQUENCE: 2
ITEM: BLRAFORWARD	MNEMONIC: F	SEQUENCE: 3
ITEM: BLRAFULL	MNEMONIC: I	SEQUENCE: 4
ITEM: BLRANEXT	MNEMONIC: N	SEQUENCE: 6
ITEM: BLRAREAS	MNEMONIC: R	SEQUENCE: 7
HEADER: D SHOW^VALM	MENU PROMPT: Select Action:	

Protocols attached to protocol menu above:

NAME: BLRAFORWARD

ITEM TEXT: FORWARD RESULT

TYPE: action

ENTRY ACTION: D FWD^BLRALFN

NAME: BLRAFULL

ITEM TEXT: FULL PATIENT SUMMARY

TYPE: action

ENTRY ACTION: D FPS^BLRALFN

NAME: BLRANEXT

ITEM TEXT: NEXT ACCESSION

TYPE: action

EXIT ACTION: D EXIT^BLRALBR

ENTRY ACTION: D NEXT^BLRALBR

NAME: BLRAREAS

ITEM TEXT: REASSIGN RESULTS

TYPE: action

ENTRY ACTION: D REA^BLRALFN

NAME: BLRASHOW

ITEM TEXT: PREVIOUS ACCESSION

TYPE: action

EXIT ACTION: D EXIT^BLRALBR

ENTRY ACTION: D PREV^BLRALBR

NAME: BLRASIGN

ITEM TEXT: SIGN

TYPE: action

EXIT ACTION: D UNSIG^BLRALFN1

ENTRY ACTION: D SIGN^BLRALFN1

5.3.1 Flow Chart of Protocols

The new RPMS Lab Electronic Signature enhancement protocols do not need to be added to existing Lab protocols.

RPMS Lab Electronic Signature enhancement Protocol	Attached to Lab ES Protocol
BLRA REVIEW LAB RESULT	BLRA LAB RESULTS LIST ACTION MENU
BLRA CHECK SUBORDINATE PROVIDER RESULTS	BLRA LAB RESULTS LIST ACTION MENU
BLRAOTHER	BLRA LAB RESULTS LIST ACTION MENU
BLRA PATIENT SORT	BLRA LAB RESULTS LIST ACTION MENU
BLRAFORWARD	BLRA LAB RESULT DISPLAY ACTION MENU
BLRAFULL	BLRA LAB RESULT DISPLAY ACTION MENU
BLRANEXT	BLRA LAB RESULT DISPLAY ACTION MENU
BLRAREAS	BLRA LAB RESULT DISPLAY ACTION MENU
BLRASHOW	BLRA LAB RESULT DISPLAY ACTION MENU
BLRASIGN	BLRA LAB RESULT DISPLAY ACTION MENU

5.4 List of Mail Groups by Name

NAME: BLR APPLICATION PLUGIN WARNING

DESCRIPTION: Members of this group will receive a warning if something is wrong with a plug-in application's setup or installation.

5.5 List of Bulletins by Name

NAME: BLR APPLICATION PLUGIN WARNING

SUBJECT: PLUG-IN NOT INSTALLED OR TURNED ON PROPERLY

MAIL GROUP: BLR APPLICATION PLUGIN WARNING

DESCRIPTION: If a trigger within the LR namespace calls a plug-in which is not installed, incompletely installed or something needed for the plug-in to run properly is missing, this message will be sent.

6.0 Archiving And Purging

6.1 Archiving

When running the Archive audit data [BLRA LAB AUDIT ARCHIVE] option, data will be automatically purged when the archive file has successfully been created. The BLRA LAB AUDIT ARCHIVE option is recommended for scheduling through TaskMan.

If the site would like the audit and archive functionality to track user access of lab data, the Lab ESIG audit and archive functions must be turned on at the site. The following steps must be used to turn on and utilize the audit and archive functionality of the Lab ESIG software:

1. Set Lab Parameters using the option “Enter/Edit Lab Parameters”
2. Select the LAB ESIG parameters to edit
3. Turn-on auditing
4. Select number of days to keep audit data in the system
5. Enter the location (directory pathname) to store archives of the audit data
6. After entering all parameters, schedule the BLRA LAB AUDIT ARCHIVE option in TaskMan

Note: It is recommended that the scheduling of the archive of audit data have a frequency of at least once a week, if not more frequently. Depending on your site and user activity in the Lab package it may be necessary to run this option at least once a day.
--

7. Once the auditing and archive functions are set in motion, the BLRA LAB AUDIT RPT option can be used by designated personnel with the BLRAZLAB security key to run audit reports and view the user activity and access in the Lab package.


```
Select OPTION NAME: BLRA PARAMETERS ENTER/EDIT          Lab Parameters
Enter/Edit
Lab Parameters Enter/Edit

Select BLRA LAB PARAMETERS LAB FILE: ?
Answer with BLRA LAB PARAMETERS LAB FILE:
  LAB ESIG AUDIT

      You may enter a new BLRA LAB PARAMETERS, if you wish
      Answer must be 1-20 characters in length.
Select BLRA LAB PARAMETERS LAB FILE: LAB ESIG AUDIT

THE CURRENT LAB ESIG PARAMETERS ARE:
LAB FILE: LAB ESIG AUDIT          AUDIT ON?: OFF
NUMBER OF DAYS TO KEEP:1          FILE DIRECTORY:
ARCHIVE LAST RUN:

Would you like to edit these parameters ? YES// Y <Return>
AUDIT ON?: OFF// ON

Please enter the number of days to keep the Lab ESIT Audit data.
  Select from 1 to 7 days (default is 7).
NUMBER OF DAYS TO KEEP: 1// 3

Enter a directory path to which the archiving will store the Audit data files
  * Warning! The directory must have write and delete access! *
FILE DIRECTORY: ?

Enter NT directory pathnames in the following format: C:\
FILE DIRECTORY: D:\RLOAD

*** THE LAB ESIG AUDITING AND ARCHIVING IS TURNED ON ***
*** PLEASE SCHEDULE THE 'BLRA LAB ARCHIVE' OPTION IN TASKMAN ***
```

6.2 Purging

The archive functionality from section 6.1 will also purge audit data from the ^BLRALAB(9009027) global as it archives it into flat files and stores the flat files in the directory specified in the Lab Parameters.

7.0 Callable Routines

Please see the chapter on External Relations for information on access to other packages.

8.0 EXTERNAL RELATIONS

Your system must be running the following RPMS packages in order to successfully operate the RPMS Lab Electronic Signature modification, Version 5.2, Patch 13.

Package	Minimum Version
Kernel	8.0
VA FileMan	21.0
Lab	5.2 Patch 12
BLR IHS LAB	5.2 Patch 12

8.1 Private Integration Agreements

Currently the RPMS Lab Electronic Signature modification Version 5.2, Patch 13 package does not have any Private Integration Agreements.

9.0 Internal Relations

There are some internal relations between the Lab Module, Version 5.2, Patch 13 and the RPMS Lab Electronic Signature Enhancement. The RPMS Lab Electronic Signature Enhancement, Version 5.2, Patch 13, currently uses some standard Lab routines and variables. Trigger events have been added to some standard Lab routines and some data fields have been added to the standard Lab Result File (#63).

10.0 Package-Wide Variables

Currently the RPMS Lab Electronic Signature modification Version 5.2, Patch 13 uses the following Lab Package Wide Variables.

LRDFN

Patient Lab IEN

DFN

Patient IEN

LRSS

Accession Subscript

- a. “CH” – Clinical Chemistry
- b. “MI” – Microbiology

LRIDT

Reverse Lab Result Date

11.0 Online Documentation

Currently there is no special online documentation for this package. You may review other information about the package through the Data Dictionary Options in FileMan or through %INDEX

12.0 Contact Information

If you have any questions or comments regarding this distribution, please contact the ITSC Help Desk by:

Phone: (505) 248-4371 or
(888) 830-7280

Fax: (505) 248-4199

Web: <http://www.rpms.ihs.gov/TechSupp.asp>

Email: RPMSHelp@mail.ihs.gov

13.0 Appendix A – Modified RPMS Routines

The following routines were modified for the electronic signature capability as part of the installation of the Lab Electronic Signature Enhancement V. 5.2, Patch 13 KIDS.

- LRVER3A
- LRMIEDZ2
- LRMISTF1
- LRMIV1
- LRMIVER1
- LRTSTSET
- LRTSTOUT
- LRRP1
- LRMIPSU

13.1 Trigger / Event Points

The following charts show all the RPMS options that will trigger a cross-reference in the RPMS Lab Module, if the ordering physician is a participating physician.

13.1.1 Clinical Chemistry Trigger Options

RPMS Menu Option Description	Option Name
Enter/verify data (auto instrument)	LRVR
Enter/verify data (Load list)	LRVRW2
Enter/verify/modify data (manual)	LRENTER
Enter/verify data (Work list)	LRVRW
Group verify (EA, EL, EW)	LRGV
Group data review (verified & EM)	LRGVP
Fast Bypass Data Entry/Verify	LRFASTS
Bypass Data Entry/Verify	LRFAST

13.1.2 Microbiology Trigger Options

RPMS Menu Option Description	Option Name
Results entry (batch)	LRMISTUF
Results entry	LRMIEDZ
Verification by supervisor	LRMIVER

13.1.3 Modifying Accessions Trigger Options

RPMS Menu Option Description	Option Name
Add tests to a given accession	LRADD TO ACC
Delete test from an accession	LRTSTOUT

13.1.4 Audit Tracking Trigger Options

RPMS Menu Option Description	Option Name
Interim report	LRRP2
Interim report by provider	LRRD
IHS Interim report for 1 provider (manual queue)	BLR LRRD BY MD
Interim reports by location (manual queue)	LRRS
Interim reports for 1 location (manual queue)	LRRS BY LOC

13.2 Clinical Chemistry Trigger Events

The following are the current menu options that will trigger an entry into the Lab Result File (#63):

- Enter/verify data (auto instrument) [LRVR]
- Enter/verify data (Load list) [LRVRW2]
- Enter/verify/modify data (manual) [LRENTER]
- Enter/verify data (Work list) [LRVRW]
- Group verify (EA, EL, EW) [LRGV]
- Group data review (verified & EM) [LRGVP]
- Fast Bypass Data Entry/Verify [LRFASTS]
- Bypass Data Entry/Verify [LRFAST]

13.2.1 MODIFIED RPMS ROUTINE

The code in bold has been changed in the following routine:

13.2.1.1 LRVER3A Routine

```

XREF      ;from COM1^LRVER4 and VER^LRVER3A
I +$G(LRDPF)=2,$$VER^LR7OU1<3 D EN^LROR(LRAA,LRAD,LRAN) ;OE/RR 2.5
I LRDPF=62.3 S ^LRO(68,LRAA,1,LRAD,1,"AD",DT,LRAN)="" Q
S LRPRAC=$P(^LR(LRDFN,"CH",LRIDT,0),U,10),LRPRAC=$$PRAC^LRX(LRPRAC)
;get doc name
S ^LRO(68,LRAA,1,LRAD,1,"AD",DT,LRAN)=""
S ^LRO(69,9999999-
LRIDT\1,1,"AL",$E(LRLLOC,1,15),$E(PNM,1,20),LRDFN)=""
S ^LRO(69,9999999-LRIDT\1,1,"AP",LRPRAC,$E(PNM,1,20),LRDFN)=""
S ^LRO(69,DT,1,"AN",$E(LRLLOC,1,15),LRDFN,LRIDT)=""
S ^LRO(69,DT,1,"AR",$E(LRLLOC,1,15),$E(PNM,1,20),LRDFN)=""
S ^LRO(69,"AN",$E(LRLLOC,1,20),LRDFN,LRIDT)=""
;
I $$ADDON^BLRUTIL("BLRA","BLRALAF",DUZ(2)) D ^BLRALAF

```

13.3 Microbiology Trigger Events

The following are the current menu options that will trigger an entry into the Lab Result File (#63):

- Results entry (batch) [LRMISTUF]
- Results entry [LRMIEDZ]
- Verification by supervisor [LRMIVER]

13.3.1 MODIFIED RPMS ROUTINES

The code in bold has been changed in the following routine:

13.3.1.1 LRMIEDZ2 Routine

```

PAT1+22 I LRTX(LRI)'["S DR=""["",LRSB X LRTX(LRI) D:'LREND EC3 D:BLRLOG
^BLREVT Q("M","R","MICRO") K DR
D:LRUNDO&$P($G(^LR(LRDFN,"MI",LRIDT,LRSB),U)'="" VT^LRMIUT1 D TRIG Q

TRIG      ;
I $$ADDON^BLRUTIL("BLRA","BLRALAF",DUZ(2)) D ^BLRALAF
Q

```

13.3.1.2 LRMISTF1 Routine

```

STUFF  I '$D(^LRO(68,LRAA,1,LRAD,1,LRAN,0))!'$D(^3) W !,"Acc: ",LRAN," not
set up." Q
      I $P(^LRO(68,LRAA,1,LRAD,1,LRAN,3),U,4) W !,"Acc: ",LRAN," has been
previously verified by a microbiology supervisor." Q
      S LRNOP=1,J=0 F I=0:0 S J=+$O(^LRO(68,LRAA,1,LRAD,1,LRAN,4,J)) Q:J<1
I LRTEST=+^(J,0) S LRNOP=$P(^0,U,5) Q
      I LRNOP=1 W !,"Acc: ",LRAN," doesn't have the test required." Q
      I LRNOP>1 W !,"Acc: ",LRAN," has been completed for the selected
test." Q
      I H9=11.57!(H9=11.58) S LROK=0 D @$S(H9=11.57:"UR",1:"SPUT") I 'LROK W
!,"Acc: ",LRAN," doesn't have the specimen required." Q
      W !,"Acc: ",LRAN S
LRDFN=+^LRO(68,LRAA,1,LRAD,1,LRAN,0),LRLLOC=$P(^0,U,7),LRODT=$S($P(^0,U,4)
:$P(^0,U,4),1:$P(^0,U,3)),LRSN=$P(^0,U,5)
      ;S LRDPF=$P(^LR(LRDFN,0),U,2),DFN=$P(^0,U,3) D PT^LRX W
?15,PNM,?45,SSN I LRDPF=2,$D(^DPT(DFN,.1)) W ?65,^(.1)
      S LRDPF=$P(^LR(LRDFN,0),U,2),DFN=$P(^0,U,3) D PT^LRX W
?15,PNM,?45,HRCN I LRDPF=2,$D(^DPT(DFN,.1)) W ?65,^(.1) ;IHS/ANMC/CLS
08/18/96
      W ! S LRCDT=+^LRO(68,LRAA,1,LRAD,1,LRAN,3),LRIDT=9999999-
LRCDT,DIE="^LR("_LRDFN_", "MI", "DA=LRIDT D ^DIE I $D(Y) S LREND=1 Q
      ;
      I $$ADDON^BLRUTIL("BLRA","BLRALAF",DUZ(2)) D ^BLRALAF
      ;
      ;D:BLRLOG ^BLRSLTL("M","R","MICRO") ;IHS/OIRM TUC/AAB 1/07/97
D:BLRLOG ^BLREVTQ("M","R","MICRO",,LRAA_", "_LRAD_", "_LRAN)

```

13.3.1.3 LRMIV1 Routine

```

T6      R !,"ENTER 'E' TO EDIT OR INITIALS TO VERIFY: ",X:DTIME
      I X="E" D PAT1^LRMIV2 K LRPRGSQ W !,"DATA APPROVED BUT NOT VERIFIED",!
G T51
      ;I $L(X)>1,$O(^VA(200,"C",X,0))=DUZ S
$P(^LR(LRDFN,"MI",LRIDT,0),U,3)=DT,^(1)=DT_"^F^"_DUZ W !,"DATA APPROVED AND
VERIFIED",! Q
      I $L(X)>1,$O(^VA(200,"C",X,0))=DUZ D Q
      . S $P(^LR(LRDFN,"MI",LRIDT,0),U,3)=DT,^(1)=DT_"^F^"_DUZ
      . W !,"DATA APPROVED AND VERIFIED",!
      . I $$ADDON^BLRUTIL("BLRA","BLRALAF",DUZ(2)) D ^BLRALAF
      . Q
      I X=""!X="^" W "DATA NOT APPROVED OR VERIFIED. " Q
      I $L(X)>1,$O(^VA(200,"C",X,0))'=DUZ W "INITIALS DO NOT MATCH." G T6
      Q

```

13.3.1.4 LRMIVER1 Routine

```

STUFF  S LRDFN=+^LRO(68,"AVS",LRAA,LRAD,LRAN),LRIDT=$P(^LRAN,U,2)
      I $D(^LRO(68,LRAA,1,LRAD,1,LRAN,0)) S
LRODT=$P(^0,U,4),LRSN=$P(^0,U,5),LRLLOC=$P(^0,U,7),DFN=$P(^LR(LRDFN,0),U
,3),LRDPF=$P(^0,U,2),LRCDT=9999999-LRIDT D PT^LRX S Y=DT D VT^LRMIUT1
S
^LR(LRDFN,"MI",LRIDT,0)=$P(^LR(LRDFN,"MI",LRIDT,0),U,1,2)_U_LRNT_U_DUZ_U_$P(^
0,U,5,99)
      S LRSET=1,II=0 F I=0:0 S II=+$O(^LRO(68,LRAA,1,LRAD,1,LRAN,4,II))
Q:I<1 I '$L($P(^II,0),U,5)) S LRSET=0
      S:LRSET $P(^LRO(68,LRAA,1,LRAD,1,LRAN,3),U,4)=LRNT W ". "

```

```

      F II=1,5,8,11,16 I $D(^LR(LRDFN,"MI",LRIDT,II)), $P(^ (II),U) K
^LRO(68,LRAA,1,LRAD,"AC",TT,LRAN)
;
; Lab Trigger
I $$ADDON^BLRUTIL("BLRA","BLRALAF",DUZ(2)) D ^BLRALAF

```

13.4 Modifying Existing Accessions Trigger Events

The following are the current menu options that will trigger an entry into the Lab Result File (#63):

Add tests to a given Accession [LRADD TO ACC]

Delete test from an Accession [LRTSTOUT]

13.4.1 MODIFIED RPMS ROUTINES

The code in bold has been changed in the following routine:

13.4.1.1 LRTSTSET Routine

```

B+3:B+10:LRTSTSET (INSERT LINES AFTER B+3^LRTSTSET):

      ;W !?5,$P(^LAB(60,LRTS,0),U,1)," ADDED" D:BLRLOG
^BLRSLTL("C","A",BLROPT
) K DIC("B") Q:$D(LRTSAD(2)) G ADDTST^LRTSTJAM ;IHS/OIRM TUC/AAB 11/14/96
;
; If lab electronic signature module exists, reset for
; pending
I $$ADDON^BLRUTIL("BLRA","BLRALAF",DUZ(2)) S
LRIDT=$P($G(^LRO(68,LRAA,1,LRAD,1,LRAN,3)),U,5),LRSS=$P($G(^LRO(68,LRAA,0)),U,
2) D ^BLRALAF
;
      W !?5,$P(^LAB(60,LRTS,0),U,1)," ADDED" D:BLRLOG
^BLREVTQ("C","A",BLROPT,
,LRIDT," LRSN ", " LRAA ", " LRAD ", " LRAN) K DIC("B") Q:$D(LRTSAD(2)) G
ADDTST^LRTSTJAM ;IHS/OIRM TUC/AAB 11/14/96

```

13.4.1.2 LRTSTOUT Routine

```

FX2+12:FX2+16^LRTSTOUT (INSERT LINES AFTER FX2+12^LRTSTOUT):

      K
^LRO(68,LRAA,1,LRAD,1,LRAN,4,LRTSTS),^LRO(68,LRAA,1,LRAD,1,LRAN,4,"B",
LRTSTS) K:LROWDT&(LROWDT'=LRAD)
^LRO(68,LRAA,1,LROWDT,1,LRAN,4,LRTSTS),^LRO(68,LRAA,1,LROWDT,1,LRAN,4,"B",LRTS
TS) W !?5,LRTNM," DELETED"
;
; If lab electronic signature module exists, update
S LRSS=$P($G(^LRO(68,LRAA,0)),U,2)
I $$ADDON^BLRUTIL("BLRA","BLRALAF",DUZ(2)) D ^BLRALAF

```

```
FX3+1:FX3+10^LRTSTOUT (SPLIT LINE & INSERT MORE LINES):
```

```
.I $D(^LR(LRDFN,LRSS,LRIDT,0)), '$P(^0,U,3) D
.. ;
.. ; PRIOR TO DELETING ENTIRE RECORD, IF ELECTRONIC SIGNATURE PLUG-IN
.. ; EXISTS THEN KILL THE CROSS-REFERENCE
.. S BLRADATA=$G(^LR(LRDFN,LRSS,LRIDT,9009027))
.. S BLRARFL=+$P(BLRADATA,U),BLRARPHY=$P(BLRADATA,U,2)
.. I $$ADDON^BLRUTIL("BLRA","BLRALAF",DUZ(2)) D KX^BLRALUT1
.. K BLRADATA,BLRARFL,BLRARPHY
.. K ^LR(LRDFN,LRSS,LRIDT)
S $P(^LRO(68,LRAA,1,LRAD,1,LRAN,4,0),U,3)="",$P(^0,U,4)=0
```

13.5 Audit Trigger Events

The following are the current menu options that will trigger an entry into the BLRA LAB AUDIT File (#9009027):

- Interim report [LRRP2]
- Interim report by provider [LRRD]
- Interim reports by location (manual queue) [LRRS]
- IHS Interim report for 1 provider (manual queue) [BLR LRRD BY MD]
- Interim reports for 1 location (manual queue) [LRRS BY LOC]

13.5.1 MODIFIED RPMS ROUTINE

The code in bold has been changed in the following routine:

13.5.1.1 LRRP1 Routine

```
TEST      S LRIDT=9999999-LRCDT,LRSS=$P(^TMP("LR",$J,"TP",LRAAO),U,2)
          S LR0=$S($D(^LRAAO,LRCDT))#2:^LRCDT,1:""),LRTC=$P(LR0,U,12)
          I LRSS="MI" S LRH=1 D:LRFOOT FOOT Q:LRSTOP D EN1^LRMIPC S
LRHF=1,LRFOOT=0 K A,Z,LRH S:LREND LREND=0,LRSTOP=1 Q
          Q:'$P(LR0,U,3) D @$S(LRHF:"HDR",1:"CHECK") Q:LRSTOP
          ;
          ; Set lab audit
          I $P(XQY0,U,1)="LRRS"!($P(XQY0,U,1)="BLR LRRD BY
MD")!($P(XQY0,U,1)="LRRS BY LOC")!($P(XQY0,U,1)="LRRD")!($P(XQY0,U,1)="LRRP2")
D
          . I $$ADDON^BLRUTIL("BLRA","BLRALAF",DUZ(2)) D ^BLRALAU
          ;
          S LRSPEC=+$P(LR0,U,5),X=$P(LR0,U,10) D DOC^LRX
```

13.5.1.2 LRMIPSU Routine

```

HDR      ;from LRMIPSZ1
          S LRPGE=LRPG+1 D:LRPG>1 WAIT Q:LREND
          W:($G(LRJ02))!($G(LRJ0))!($E(IOST,1,2)="C-") @IOF S LRJ02=1
          ;W !,PNM,?20," ",SSN,?35," AGE: ",AGE W:$L(LRWRD) ?46,"LOC: ",LRWRD
          W !,PNM,?20," ",HRCN,?35," AGE: ",AGE W:$L(LRWRD) ?46,"LOC: ",LRWRD
;IH
S/ANMC/CLS 08/18/96
          W ?61," ",LRDT0 S A8=$P($H," ",2),Y=A8\3600_"":_"$E((A8\60#60+100),2,3)
          W " ",Y W:LRHC !
          W:LRPG=1 !?27,"---MICROBIOLOGY---",?70,"page 1"
          I $D(DUZ("AG")), $L(DUZ("AG")), "ARMYAFN"[DUZ("AG") D ^LRAIPRIV
          I '$D(LRH),LRHC W
! ?32,$S($D(^XUSEC("LRLAB",DUZ))&'$D(LRWRDVIEW):"LAB",1:
"CHART")," COPY"
          W:LRPG=1 !,"Accession: ",LRACC,?40,"Received: ",LRRC
          W !,"Collection sample: ",LRCS,?40,"Collection date: ",LRTK
          I LRCS'=LRST,LRPG=1 W !,"Site/Specimen: ",LRST
          I LRPG=1 W !,"Provider: ",LRDOC,! W:$L(LRCMNT) "Comment on specimen:
",L
RCMNT,!
          W:LRPG>1 !?20,">> CONTINUATION OF ",LRACC," <<",?70,"page ",LRPG
          Q
WAIT      ; from LRMIPSZ1, LRMIPSZ2
          ;
          ; Set lab audit
          I $P(XQY0,U)="LRRS"!($P($G(XQY0),U)="LRRS BY LOC")!($P($G(XQY0),U)="
LRRD")!($P($G(XQY0),U)="LRRP2")!($P($G(XQY0),U)="BLR LRRD BY MD") D
          . I $$ADDON^BLRUTIL("BLRA","BLRALAF",DUZ(2)) D ^BLRALAU

```